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ABSTRACT

Electronic networking can help postsecondary institutions with distance education (DE) programs respond to increasing pressures to improve the services they offer and make them more cost-effective. Some institutions immediately accepted the need for electronic networking and began to develop and implement technology plans focused primarily on hardware and installation. As postsecondary funding continued to diminish, the advantages of electronic systems for admissions, registration, record keeping, financial management, and administration became evident. Electronic networking can be a useful tool to DE operations; however, DE programs interested in wider implementation of electronic networking in their academic services must develop a clear vision and administrative system that reflects the realities of DE rather than those of conventional systems. Managing a DE organization requires policies and procedures that reflect students' realities and encourage staff creativity. The specifics of a DE program's electronic networking plan will depend on whether the DE program is a stand-alone unit or part of a larger dual-unit organization (for example, a division of continuing studies of lifelong learning). Wider implementation of electronic networking in academic services requires a planning exercise to develop a clear vision for its integration. Ongoing issues include decentralization of media production and professional development of staff. (Contains 23 references.) (MN)

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Managing for Electronic Networking

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Wider implementation of electronic networking in academic services a planning exercise to develop a clear vision for its integration.

Educators would like to see post-secondary institutions adopt more contemporary models...while those in distance education institutions recognise the need to provide feedback to students and to enhance teacher-student interactivity.

introduction

INTRODUCTION

Post-secondary educational institutions are under increasing pressure for change. Some governments want institutions to produce increased numbers of science and technology graduates for the knowledge management economy. Potential students are anxious to obtain post-secondary education in a world where credentials are considered the initial step to career success. Some pressure is for flexibility as well as access, as students find themselves unable to afford full-time school and meet additional family or professional commitments. The pressures from the corporate world are to do more with less, and to indicate increasing effectiveness and efficiency through benchmarking, performance indicators and outcome measures. Employers would like more continuing professional education opportunities for their employees, to keep their knowledge current. Educators would like to see post-secondary institutions adopt more contemporary models based on the premise of active, social and experiential learning, while those in distance education institutions recognise the need to provide feedback to students and to enhance teacher-student interactivity. Underlying all these is the expectation that information technology (IT), while the source of many of these pressures, holds the answer.

ELECTRONIC NETWORKING

IT involves the use of electronic networking, which refers to communications strategies that depend on the Internet or on local electronic networks. This includes:

- messages sent through e-mail to an individual or to a group of people
- using computer conferencing software for group discussions
- using the web to retrieve and to post information
- using audio and video streaming to send information electronically

Besides providing opportunities for people to communicate across space, electronic networking allows for time manipulation. People can correspond in real time (synchronous conferencing), or at their convenience (asynchronous activity). Electronic technology depends on an infrastructure of communications devices from the desktop computer to phone lines and microwave towers, satellite dishes and underwater cables. Recent developments in wireless networking are likely to accelerate infrastructure development, making electronic networking a reality for more of the world's population.

REACTING TO THE PRESSURE

Some institutions immediately accepted the need for electronic networking and began to develop and implement technology plans, mostly focussed on hardware and installation. Many campuses were "wired" before a use for the technology was clearly envisaged. Continuing advances in telecommunications increased the pressure to keep up with competitors.

As post-secondary funding continued to diminish, the advantages of electronic systems for admissions, registration, record-keeping, financial management and administration became evident. Libraries, faced with the escalating price of print materials, began to reinvent themselves as multi media centres where learners could check databases of holdings, do web searches, and read materials online.

The first wave of IT adaptation took place in the administrative and support functions of post-secondary institutions. It gave large distance education institutions improved access to decision-making information, such as warehouse inventory, the number of marked assignments and whether the grades were above or below the course average. An institution could add a bar code to every assignment and track the progress of each. However, wider implementation of electronic networking in academic services requires a planning exercise to develop a clear vision for its integration.

plan

DEVELOPING A PLAN

Most organisations form a planning committee. Both Daniel (1999) and Bates (2000) outline the dangers of employing a plan that does not involve the faculty in its design, based on the belief that the organisation is dependent on faculty for implementation. Bates even suggests that discussion take place in individual departments.

It is important to know what you are planning for:

- Is there a need for increased access?
- Are students demanding greater flexibility, more interaction, or faster turnaround times?
- Are faculty demanding to use electronic networking, or do they want to reduce teaching commitments?
- Are students leaving for competitors with such systems? If not, is such a competitor likely in the next three years?
- Is the government demanding efficiencies you believe can be met through economies of scale using electronic networking?

- Do you believe you are in danger of being left behind in the implementation of electronic networking technologies?

The post-secondary sector has changed to include very large distance education institutions with student populations in excess of 50,000, and private providers targeting niche markets. Employers now provide continuing professional education training programmes (including degrees, usually in cooperation with a recognised institution) to employees. The communications industry produces not only online texts, but also electronic support materials, test banks, suggested assignments, and web sites where students can read responses to frequently asked questions.

You need to question your position within the post-secondary sector:

- Are you a major research institution, a multiversity, or a smaller institution with designated strengths?
- Is your institution distributed, that is, with a number of campuses in different locations?
- Are you purely a distance education institution?

The convergence of distance education and classroom instruction is now evident on many traditional campuses (Tait & Mills, 1998). In the increasingly differentiated post-secondary sector it is important to choose your niche, as it is impossible to have sufficient resources to serve everyone equally well.

Review the context of your institution:

- Are partners adopting electronic networking?
- What is the level of IT infrastructure in the distribution area of student intakes? What percentage of students own computers? Do they have other access to equipment, for example at work or at Internet cafes?

Ultimately, the senior administration must commit to implementing electronic networking. They have to agree on the purpose and on the proposed outcome; they need to be seen to actively operate within the electronic networking system. A president who uses chalk and a blackboard is letting actions speak louder than words. If faculty already use electronic communications, they may find such diffidence frustrating and look for positions elsewhere.

It is essential to do your budget homework. It may be possible to obtain efficiencies through the use of electronic networking, but this is likely to take time and to be incremental rather than obvious. Bates (2000) warns about the need to know the costs and benefits of the present system before undertaking changes. In particular, hardware, often viewed as a major cost, should be considered part of the process rather than an object to be purchased. He warns the heaviest costs are likely to be in providing support services to faculty in the process of integrating electronic networking into their teaching. Some long term planning will help when you are comparing implementation strategies:

- What do we want to be?
- How good are we?
- What do we need to do to improve?

Visioning helps establish the first. The second calls for an internal audit to identify present benchmarks and people who have already begun to implement the vision, especially those able to put ideas into practice.

Some authors suggest it is essential to use a planning model that recognises the importance of the academic, administrative, and student cultures and tries to work within their constraints. Implementation of electronic networking affects the institution's core work, so much depends on the characteristics of the academic culture:

- Is it confrontational?
- Is it concerned about working conditions, or interested in improving teaching and learning?
- Is decision-making centralised, or decentralised?

Many planning activities falter and disappear once the major priority of the institution changes, because senior management are unable to sustain and integrate pilot projects into the institution's working life. Their commitment was strategic and political, rather than real and sustained.

WHAT ABOUT DISTANCE EDUCATION?

Electronic networking can be a useful tool to distance education operations, but many of them need to develop administrative systems that reflect the realities of distance education rather than those of the conventional system. For example, there is still a tendency to use the traditional two-term academic year despite the fact that distance education students find the traditional start of term to be their busiest time.

Institutions with investment in distance education need to reassess their next steps:

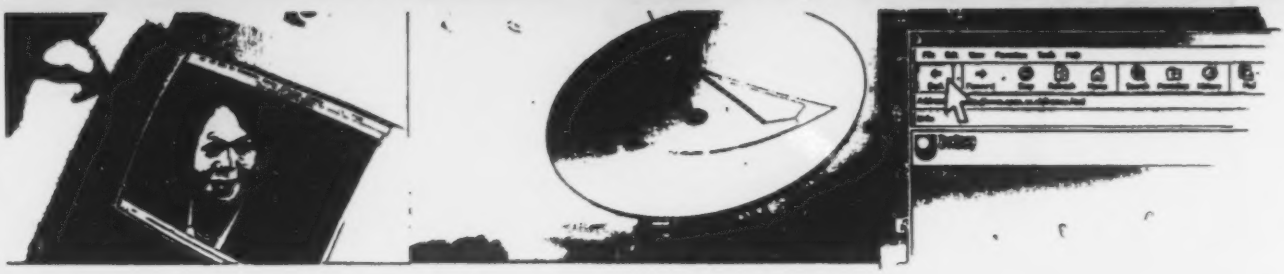
- Should they move to integrate distance education into the mainstream of the organisation through using electronic communications technologies?
- How difficult will it be to transfer a print-based system to an electronic one?
- What are the risks if they do not integrate electronic networking?

The worlds of distance and conventional education are converging. The market is no longer local, but global. The fear for many is that delays in moving to electronic networking will result in challenges to the institution's survival. Most organisations have therefore begun to plan for, or to implement, some form of electronic networking.

MANAGING THE PLAN

Managing a distance education organisation requires policies and procedures that reflect students' realities, and which encourage staff creativity. Distance education units are either stand-alone or are part of a dual-unit organisation, most often as a division of continuing studies or of lifelong learning.

Where the unit is part of a larger institution, the unit's relationship with senior management has to be direct and must involve strong financial commitment. Without the support of the executive, policies can be approved that benefit one unit but which marginalise the other. If the reporting structure and



budget approval process is handled by a middle manager, there is more of a chance that the different requirements of the distance education unit will not be accepted and nurtured. To be creative and to grow, the policies and procedures of the distance education unit need to be aligned with the reward structures of the institution.

Distance education units need well developed instructional, administrative and student support systems to be effective. In a dual-unit organisation, the main administrative structure should have sub-systems of recruitment, admission, registration, reporting, and accreditation for the distance education unit that integrate both with the finance system (fee payments), and the instructional support system (ensuring that students receive course materials soon after they register). Delays and inefficiencies can have a very negative effect on students' perception of the interest of the institution in their learning.

Distance education institutions also require a heavy investment in course and programme development and support. Unlike traditional universities, where individual faculty members develop their own courses within minimal guidelines, distance education courses have to be developed through a team process. The original writer may not be the course instructor, and repetition of content across courses is more obvious.

Institutions dependent on contract writers (often faculty at conventional universities) face a number of issues. The priority for the writer is usually their regular work, even after approval from the department chair. It's therefore difficult to require the writer to meet their deadlines. Many faculty are not used to working with instructional and media designers, and may consider the involvement a challenge to their expertise.

Much hinges on a timely course development process. Delays in course development can cause delays throughout the system. However, many distance education institutions employ their own faculty, who over time become sufficiently proficient in instructional design and play a bigger role in designing courses.

While the course development process resembles that of traditional universities, the student support system is in many ways unique. Tutors are assigned to groups of registered learners to help with difficulties, mark assignments, facilitate learning and record contacts and grades. The role may be the task of a single person at one institution and of several people at another; for example, marking could be assigned to people other than those providing ongoing support. Some use telephone operators for administrative questions, transferring only content-specific queries to tutors. It is essential to have a clear and timely response structure for student queries. If students have to wait some time for a response, they may give up.

Even students with ready access to a telephone may have difficulty calling for assistance, especially in cultures where this is not accepted behaviour. In the case of study centres, personnel must be qualified to provide correct information. These people are the local face of the institution; they must be responsible for providing appropriate academic counselling and support to local students.

Faced with the introduction of electronic networking, most distance education organisations focus on technology. Yet, it's not possible to purchase a system and be confident of its adequacy in five years. The institution must consider the types of infrastructure needed, where flexibility can be maintained, and how to incorporate technological growth. Efficiencies can be realised; electronic networking systems allow remote people access to the same database, which reduces duplication and increases accuracy. However, if technology is to be more than a short-term fix, senior management must identify a vision for the institution and show how electronic networking technologies will achieve this vision.

Implementation could begin with setting a general level of expected computer use for faculty, staff and students, such as Internet search features, e-mail, and word processing. This allows for web-based course materials, receiving and returning assignments electronically, and online access to institutional services. Beginning with administrative services gives the staff time to become proficient and to convert all administrative materials to electronic systems. Students must be given access to computers and help with developing technical skills. Tutors must be proficient themselves and must have access to computers at local centres to provide online services. The issue of whether to set up an internal Internet provider or go with a private company will also have to be decided.

Many organisations are restrained by the costs, and will have to gradually introduce technology in areas with the most potential for efficiencies. For example, information technologies have changed libraries from merely physical places where books are stored to also being virtual learning centres.

For institutions that have decided to use electronic networking technologies in course development and student learning processes, decisions have to be made about the sophistication and range of multi media involved. The more complex the media, the more likely that course development will involve a costly production process. The issue of cost of return on investment is raised. Continued financing is also important; courses developed using electronic networking and other technologies need support for some time.

While the most frequent model used in traditional distance education institutions was the centralisation of development and production to capitalise on economies of scale and expertise, the likely effect of using electronic networking technologies is that faculty and design support will be decentralised. There are few reasons for retaining a centralised production unit, since there are no longer likely to be large print runs or duplications of material best accomplished through one location.

Decisions on which courses to develop online requires information about:

- class size
- projected enrolments
- stability of course content
- student computer access and availability
- whether a whole programme of courses should be developed

Bates suggests that a multi-disciplinary faculty council make decisions based on a detailed plan and budget submissions.

Some institutions just add a computer conferencing component to an existing course. The danger is that this becomes an aggravation to students and tutors rather than an enhancement. Distance

education institutions should remember the lessons learned by those who added classroom sessions to already developed individual study courses; students had to complete the tutor's course work as well as satisfy the classroom instructor, who often re-taught materials with a different emphasis and required additional assignments. In other instances, students complained that they didn't need the group interaction because they were at different parts of the course and resented this use of their valuable study time.

Developing materials electronically allows faculty to have more ownership of course material. It provides opportunity for others, from tutors to media producers and instructional designers, to provide earlier input. One of the most talked about advantages of electronic networking in distance education is that it facilitates *constructivism*, the construction of meaning through discussion with others. A tightly scripted and pre-packaged course would not support this form of learning. Many designers are using strategies like problem-based learning, experiential learning and group projects to help develop *learning communities* as part of their courses. A ratio of learner autonomy to course structure needs to be decided.

Just as distance education systems are different from those in conventional post secondary institutions, so also are systems based on electronic networking from those using other technologies. Some issues are temporary; for example, initial levels of student support are likely to be unnecessary as information technologies become more widespread and students no longer need to be taught technical skills. Other issues, especially those associated with continued change in the area of electronic networking technologies, will remain.

As Daniel points out, decentralisation of media production is not likely to bring large economies of scale immediately. However, there is increasing online production of additional learning materials by commercial book publishers as well as the development of electronic knowledge databases. The latter are small, complex pieces of media-based software that others can access and use in their courses, but they are at a level of media sophistication often too costly for many distance education organisations to develop.

Another ongoing issue is professional development for staff. Since we can access others' materials, in the long run there may be less differentiation in the product and more in the service. General issues about appropriate protocols for conferencing, for example, are likely to be replaced by more sophisticated concerns about specific learning options and communications strategies.

CONCLUSION

In introducing electronic networking systems, institutions must develop appropriate quality control measures. It's not so long ago that distance education was denigrated as second best, and it is all too likely that after their first involvement with electronic networking students may have similar complaints. The institution must ensure that courses are well designed, and that the use of networked technologies adds value and is integral to learning. The old system of extended discussion is still important to identify core values and goals, but institutions need to make strategic directional changes within tighter time periods than before.

It is essential that institutions understand change as a process, not an event. The organisation will have to balance its need for standardisation and for tight fiscal controls with the flexibility and risk-taking that innovation and creativity demand. It will need to continue to make decisions which keep the institution current, but not on the bleeding edge; having access to accurate information increases the likelihood that such decisions can be managed correctly. Planning as an ongoing process is essential if institutions are to make the most of what the new century can provide.

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Note: Technology plans for almost every major US university are accessible on the web. Search under "technology plans".

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